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VISUAL DEFICIENCIES AND READING DISABILITY.

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THE ROLE OF VISUAL SENSORY DEFICIENCIES IN THE CAUSATION READING DISABILITY IS DISCUSSED. PREVIOUS AND CURRENT RESEARCH STUDIES DEALING WITH SPECIFIC VISUAL PROBLEMS WHICH HAVE BEEN FOUND TO BE NEGATIVELY RELATED TO SUCCESSFUL READING ACHIEVEMENT ARE LISTED--(1) FARSIGHTEDNESS, (2) ASTIGMATISM, (3) BINOCULAR INCOORDINATIONS, AND (4) FUSIONAL DIFFICULTIES. FOUR PRIMARY RESPONSIBILITIES OF THE SCHOOL CONCERNING VISUAL PROBLEMS AS APPLICABLE TO THE CLASSROOM TEACHER ARE CITED--(1) THE DETECTION OF VISUAL PROBLEMS, (2) THE REFERRAL OF THE CHILD TO THOSE PROFESSIONALLY QUALIFIED, (3) THE ADJUSTMENTS OF INSTRUCTION TECHNIQUE, METHODS, AND EXPECTATIONS BASED UPON THE NATURE AND SEVERITY OF THE VISUAL PROBLEM, AND (4) LEADERSHIP AND PARTICIPATION IN RESEARCH. A BIBLIOGRAPHY IS INCLUDED. THIS ARTICLE IS PUBLISHED IN THE "JOURNAL OF READING," VOLUME 9, OCTOBER 1965. (MD)

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VISUAL DEFICIENCIES AND READING DISABILITY

By CARL L. ROSEN

The search for causes of failure in reading has taken many paths in the history of educational research. Active exploration into the role of visual sensory deficiencies in the causation of reading disability spans a period of almost three decades from the late 1920's into the late 1950's. Interest in this area began due to the observation that reading superficially appeared to be an act performed directly with the eyes. To many investigators the efficiency of the ocular mechanism in transmitting adequate sensory impressions to the visual center of the brain thus appeared to be the primary prerequisite to successful achievement in reading. Indeed, quite recently Taylor[36] presented a theoretical model of the stages in word perception in which certain visual functions operating at the "intake level" were defined as iniating the perception of words. Among some professional workers and in many lay circles, it is currently held that visual sensory defects are primary among the physical causes of failure in reading.

Research over the years has been profuse. In general several specific visual problems have been tentatively implicated by some workers as being negatively related to successful reading achievement: factors such as farsightedness,[2,6,10,12,35] astigmatism,[13,15,18,31,34,35] binocular incoordinations,[15,26,28,32] and fusional difficulties[2,14,21,24,25,27,34] have been so identified. Limitations inherent within the design of studies and difficulties involved in making comparisons between studies tend to limit the definiteness of this information. Indeed, a great deal of contradiction in the findings from study to study characterize this area.

Current opinion among authorities such as Bond and Tinker[7] and Harris[22] suggests that the relative role of visual sensory defects in the causation of disability in reading should neither be discounted nor be given greater emphasis than available research evidence can support at this time. Several authorities emphasize the need for further and more well-designed research in this area.[4,29,33]

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The question that naturally arises is why, in the light of some 30 years of research, are authorities in the field so tentative in their evaluation of the research findings? A review[30] of the reported research in this area reveals many limitations and inadequacies of design. These relate to such factors as questionable validity and reliability of the visual instruments, inadequate criteria and standards of significance for both visual defects and reading disability, and inappropriate sampling procedures and statistical analysis of data. Excellent summaries of the literature[5, 9, 17, 37, 38, 39] in this area are available in which there is evidence suggesting that the search for a *single factor*, such as visual sensory defects or an explanation for reading failure among pupils, seldom is valid. Robinson[28] has reported that several conditions might frequently operate along with visual difficulties as causes of reading disability: among these, home, familial, social and emotional factors ranked high in the sample of pupils studied. In the histories of some disabled readers, visual problems might be uncovered which could have been either directly related or contributory to the reading disabilities. In other situations, the presence of a visual problem could be merely a coincidental accompaniment to the reading disability. The results of years of research indicate that visual defects appear frequently among all levels of reading capabilities and that far too many children might be burdened by visual problems through their years of school.[4, 11, 14, 19, 20, 31]

In this regard several investigators[8, 13, 40] have pointed out that many minor and some moderately severe visual problems among children can be compensated for by neuromuscular efforts. The number of such children who proceed through their school years burdened by the necessity to compensate and adjust for visual defects must be reduced through more adequate programs of visual screening. Many communities, in cooperation with local professional groups, have made pioneering efforts to discard outmoded and inadequate visual screening procedures. In school systems where this has not come about, parents of school children might obtain false assurance concerning the visual status of their children due to unreliable vision screening techniques. Many visual defects that remain undetected might become more severe and thus directly or indirectly contribute to learning difficulties resulting from the visual strain and discomfort experienced. Certainly the task of learning to read is one of the most complex and difficult processes that the child will ever encounter. It is, therefore, essential that readiness for this learning should include an adequate appraisal of *all* physical conditions that might impede this process or make it more difficult than need be.

The classroom teacher should consider four primary responsibilities of the school in this problem:

1. The *detection* of visual problems through a knowledge of the observable symptoms of visual difficulties[1, 23] and the establishment of a systematic, comprehensive and continuous school vision screening program.

2. The *referral* of the child to those professionally qualified to provide the necessary visual services, and to obtain from the visual practitioner a follow-up report concerning the nature of the problem, the procedures instituted to correct the problem, and the recommendations concerning the visual considerations necessary for adjustment of classroom instruction in reading.

3. The *adjustments* of instructional technique, methods, and expectations based upon the nature and severity of the visual problem. In consultation with the vision practitioner, the classroom teacher should make the necessary instructional adjustments. Excellent discussions of educational considerations involved in the teaching of reading to children with visional problems is provided by Bond and Tinker[7] and Eames.[16]

4. *Leadership and participation* in research. If one factor is consistent in the literature in this area, it is the need for further study. Normative data concerning the visual characteristics of school-aged children have only begun to be collected.

Systematic appraisal of the visual requirements at various levels of reading instruction must be conducted. Survey studies concerning the incidence and frequency of specific eye defects are required. Comprehensive studies in which multiple factors in the causation of reading disability are studied together should be attempted. Specific visual defects such as accommodative inadequacy, astigmatism, vertical imbalance, binocular functioning in the reading task, monocular vision, visual field defects and aniseikonia should be further explored, and interrelationships between specific visual defects and perceptual capabilities should be investigated. The construction and validation of more effective visual screening instrumentation as well as studies investigating relationships of specific visual sensory defects to specific disabilities in reading seem necessary.

It appears axiomatic that concern and attention should be given not only to future research exploring relationships between visual functioning and reading capability but also to more efficient and effective techniques for screening and caring for the visual needs of the children in the schools. In the final analysis, however, teachers

need not have children in their classrooms with difficulties in reading attributable to these problems. They may avoid them by being alert and sensitive to identifying the problems and to the individual needs of children with visual deficiencies. Instructional adjustments based on knowledge of the problem mitigates the negative influence it may have upon reading achievement.

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